



IMPLEMENTATION



Figure 6.1 Steeples in winter

A comprehensive architectural lighting master plan is a significant undertaking for any municipality. When an agreement on the basic lighting concepts is achieved, an implementation program must be developed. The following chapter suggests guidelines on prioritization of projects, phasing specific projects, the use of mock-ups, the creation of ordinances, concerns about ongoing maintenance, and how to update the lighting master plan in the future. **The topics in this chapter are suggestions only, not mandatory restrictions or guidelines.**

Prioritizing the City

Because a plan like this involves many individual building owners or organizations to independently fund projects, the ultimate implementation of the lighting master plan may take many years. Through public involvement in the planning and implementation stages, excitement over the lighting projects can be generated.

It is important to make several strong and highly visible gestures throughout the South Side at the onset of the program. Selecting a few buildings to begin the program can have great effects. The building owners



who are approached about being part of the initial round may feel a sense of honor and pride about having their building selected. As these buildings are turned into striking nighttime landmarks, they become the best motivational tool for other building owners. As more structures become illuminated in an appropriate manner, the excitement will build.

It is better to fully plan your lighting project before starting any phase of construction.

The initial projects will be very important to the long-term success of the plan. Creating a strong and bold statement will generate very positive feedback if done properly. However, if glaring, over lit, or poorly done the negative feedback will be difficult to overcome.

Phasing Each Building

All construction projects require an initial and maintained cost. Often the cost of implementing a full design and construction project is prohibitive for a building owner. Fortunately, **not all lighting projects require the implementation to be completed in one phase.** Often incremental steps can be used to reach a final goal. Although the overall project may be broken down into

smaller pieces, in between phases the building does not have to look like an incomplete project.

A church may be an easy type of project to phase. The church might have the money to restore the historic fixtures outside the front entry. This greatly increases the streetscape appearance of the building. As a result, a donation might be given to backlight the stained glass window at the front of the church, further enhancing the streetscape appearance.

These projects then generate enough excitement that a fund raising committee is organized to raise money to light the steeple. Over time the church reaches its full nighttime potential and the initial cost was distributed over a period of time.

It is recommended that when a building owner plans to do a phased project, they should keep the ultimate goal of a beautifully lighted building in mind. **That often means planning for the final result initially and then constructing in phases.** The incremental decisions made at each phase could lead to a less than desirable final appearance. This idea is reflected in the old adage “measure twice, cut once,” which implies it is better to fully plan your project prior to implementing. Balancing light, shadow, color, texture, and intensity

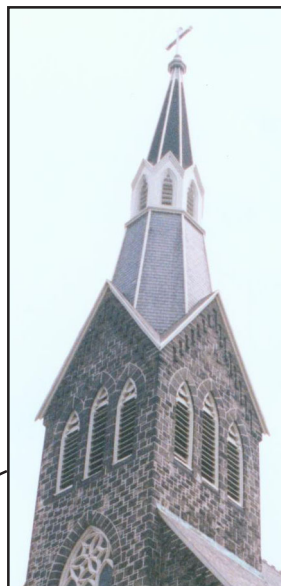


Figure 6.3 Steeple



Figure 6.4 Stained glass

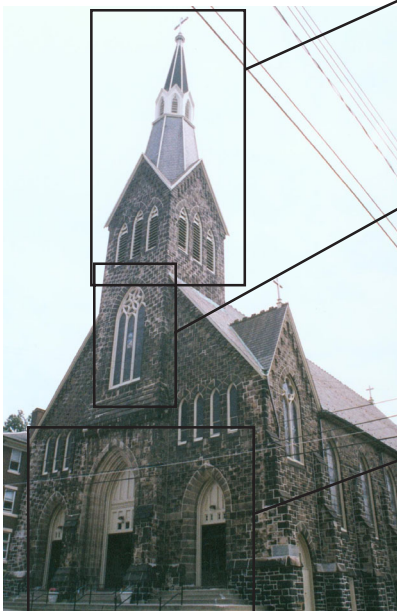


Figure 6.2 Holy Infancy Church

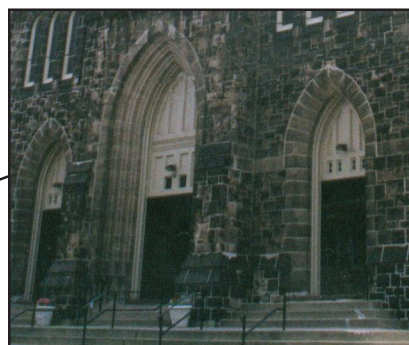


Figure 6.5 Main entry doors

is easiest when the design is comprehensive and complete before any construction begins.

Mock-ups and User Evaluations

Test areas and mock-ups are extremely valuable for a number of reasons. They give perspective and better define the scope of work, length of construction periods, nuances in design or construction, possible conflicts, and finally, public reaction.

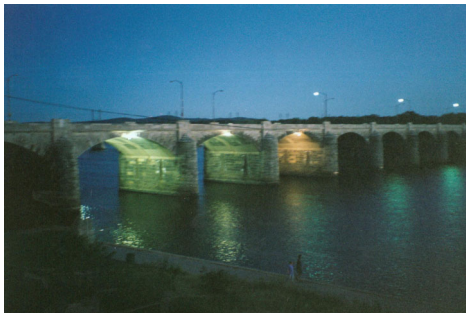


Figure 6.6 *Market St. Bridge mock-up, Harrisburg, Pennsylvania*

Mock-ups allow a designer to better convey the concepts to the owner with minimal cost to the owner. This ensures that the building owner will not be surprised and feel too much or too little light was provided, and that light is applied where it is desired.

Mock-ups also teach the design team about valuable building-specific information, such as ambient light conditions or details about wall conditions. A specific example could be a wall that was intended to be grazed with light. When the mock-up occurs it is discovered that about 10 feet up, the wall starts leaning back and the rest of the wall is in shadow. The light exaggerates the slight lean in the old wall and makes the building look unsafe. In this case the mock-up might show that a floodlight aimed straight at the wall would be more attractive. Another example could be adding decorative fiber optics to a structure and at the mock-up the building owner decides they would sooner have a brighter source like neon, even if it does not change color.

A mock-up also allows the owner to see how their building will look in context with other structures on the street and skyline. That concept of using an ornamental fiber optic light may seem great on paper, but it may look out of place on the street with other subtly floodlighted structures.

Covenants and Ordinances

At this time the City does not have ordinance provisions requiring the review of commercial lighting. Although this plan recommends the installation of architectural lighting on significant buildings and structures, it by no means recommends that all lighting is appropriate or that no review of lighting could be necessary in the future. Many communities have ordinances requiring the review of lighting plans for new commercial or nonresidential construction, including parking lot lighting. Any future review of an owner's lighting installation should be based, as much as possible, on numerical evaluation to minimize disputes over aesthetics. Categories for review could include spill light, illuminance (or brightness), and sign lighting. Ordinances could be developed to address the many vacant lots left by Bethlehem Steel and other new parking facilities. As downtown grows in popularity, safety in parking areas will be a major concern.



Figure 6.7 *Beth Works parking lot*

However, the light levels in parking lots throughout the South Side should not outshine the downtown attractions. Sample ordinances could be found from other communities or design professionals. The



Architectural Lighting Committee, with the support of the City of Bethlehem, could work toward establishing solid lighting ordinances to control future lighting installations.

Preventative Maintenance

Wouldn't it be nice if everything looked as good as the day you first purchased it? Routine maintenance is easy to remember on certain things. For example most people remember to wash their cars occasionally and change the oil every 3,000-4,000 miles. We do these things because we know they help maintain the vehicle's looks and reliability and avoid much more costly repairs in the future. A lighting system is very similar. Occasionally cleaning and relamping the fixture will keep it operating like new.



Figure 6.8 *Eliminate glaring fixtures*

Cleaning cycles depend on many things: how dirty the surroundings are affects the dirt accumulation, the direction the fixture can be aimed, the ability of the rain to wash the fixture clean, and so on. All light fixtures should be checked on a regular basis after a new installation to establish a cleaning program. Figures 6.9 and 6.10 show a floodlight mounted on a canopy in downtown Harrisburg. During the summer months the mayflies were attracted to the light and died on the lens. This accumulation of bugs trapped the heat inside the fixture and led to the lens breaking due to heat stress. As a result, the bugs fell into the fixture. In a few short nights the bugs filled the fixture and created a significant fire hazard. Regular cleaning of the lens could have prevented this.

Along with routine cleaning of the exterior of the fixture, the interior should be cleaned at every lamp change. The exterior of the fixture should be inspected, and any damage should be repaired immediately. It is highly recommended that group relamping be done. Group relamping simply means that the lamps are replaced in all of the fixtures at one time. This typically occurs around 70% to 75% of the rated lamp life. With modern high efficiency lamps, many reach the end of their useful life before they completely burn out. Thus, if one lamp is replaced before the rest, it can have a different color or brightness. In addition, it is often more economical from a material and labor standpoint to replace several lamps at a time than to get the equipment and replace one lamp this week and another next week, and so on.



Figure 6.9 and 6.10 *Poorly maintained light fixture*

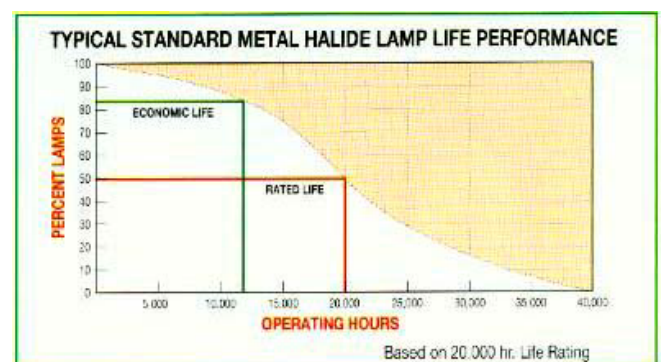


Figure 6.11 *Lamp Life Performance Chart*

Because the South Bethlehem facade lighting program puts the responsibility of maintenance on many individual building owners, control of the maintenance will be difficult. It is recommended that building owners submit a maintenance schedule and plan with the design documents for review by the Architectural Lighting Committee. The owner should also sign a maintenance agreement stating that they plan to adhere to the plan as submitted and approved. This agreement is simply a “statement of intent” and not intended to be a legal document.

Updating the Master Plan

Recognizing the potential for obsolescence inherent in any planning document, it is strongly suggested that a review procedure be established to update and revise the lighting master plan. Regular reviews should be carried out by representatives from all public agencies and private citizens’ groups concerned with the visual environment of downtown South Bethlehem. The principles of perception and visual communication on which this particular plan is based should drive decisions for updating it.

As projects are implemented, the plan should be updated to reflect the actual project. Perhaps a new lighting map could be created indicating the existing buildings and which are highlighted. This map can then be added to as new structures are built and/or lighted. The techniques used should be documented and a photo of the finished building should be kept as part of this document. This allows the committee to track the progress and adherence to the plan, as well as quickly make decisions regarding new projects next to previously illuminated buildings.

Other Improvements to be Studied

The architectural highlighting of buildings and significant structures should be one key element of the revitalization program for South Bethlehem. In conjunction with the South Side Master Plan and this document,

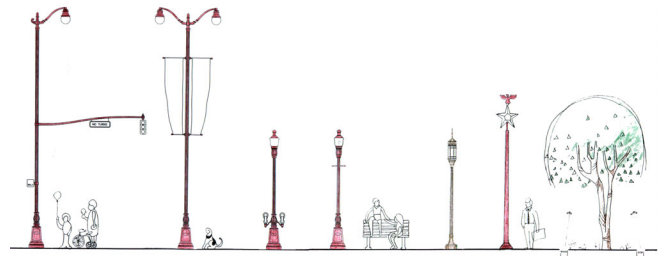


Figure 6.12 Sample light fixture palette from Harrisburg

comprehensive planning should be done for other detailed aspects of the streetscape.

Pedestrian and vehicular lighting along the streets should be planned. Selecting a fixture to be used on a street based on a whim or personal preference might not lead to a cohesive downtown area. The South Side Master Plan clearly defines districts and corridors within the South Side. These areas could be defined by the streetlights and furniture. For example, the retail district may want more light and fixtures with more vertical light. On the other hand, citizens in a residential area want a safe amount of light, but do not want it entering their bedroom windows. Scale and type of fixture can help define vehicular versus pedestrian areas or potential conflict intersections. A small palette of fixtures should be created and an overall concept for how and where to use those fixtures should be generated. This way future decisions are not based on an individual preference.

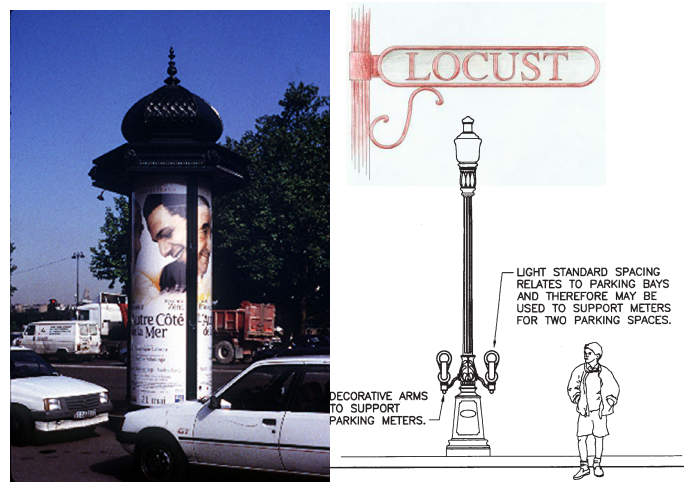


Figure 6.13, 6.14, and 6.15 City enhancements



Public signage and traffic signals are another major concern for making the downtown more accessible to visitors. Clearly marked streets and buildings make it easier for visitors to find their way. An integrated plan of streetlights, signage, and signals creates an easy to follow, intuitive system that makes visitors and residents feel welcome. Integrating such features as parking meters, planters, and banners can further enhance the overall streetscape view. The use of kiosks and other informational devices can further enhance the accessibility of the city. Kiosks provide a public posting

area and prevent the city's hardware from being vandalized by flyers.

Developing solid landscaped parks or entry gates to the South Side could help to anchor the architectural lighting plan. The rail to trail program through downtown, as suggested by the South Side Master Plan, would be an excellent project to provide a pedestrian corridor to tie many of the significant structures in town together. Through quality landscape with integrated lighting, this project could become the ribbon that ties the whole city and the architectural highlighting plan together.



Figure 6.16 *Potential Linear Park*

Summary

Through private and public investment, the nighttime view of the South Side of Bethlehem can become very dramatic, exciting, and inviting. Displaying the strong religious and diverse ethnic backgrounds by highlighting the many historic places of worship gives the community a unique sense of history and pride. Strong support from the University and businesses downtown can draw students into the business district for shopping and dining after class. Humans are social creatures and as excitement builds in the downtown, more people will join. As the streets become busier, more businesses will open and this cycle leads to more revenue for the city and opportunity to do more redevelopment projects.



Fig. 6.17 *Steeples in summer*



